Public Works (1914) Department.

183

183

G.O. No. 1539

DATED 25·3·1914.

Recd
Chf
5/6

The Notes
in this G.O. have been printed.

[Despatch Abstract.]

Irrigation

Periyar System — appointing the Hon'ble Mr. H. F. W. Gillman I.C.S. assisted by Mr. O'Brien Ex. Engr. to conduct an enquiry into the question of the working of the — in connection with a resolution moved by the Hon'ble Mr. K. Rama Ayyangar at the meeting of the L. Council held on 28th Jan. 14

AR
20/3

~~Indexed.~~

P. W. 9.
2,000—2-10-12.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Da

Government of Madras.

PUBLIC WORKS DEPARTMENT.

IRRIGATION

Recd.	1914.	*Enclosures*	
Regd.		*Spare copies*	

G.O. No. 153 I., 25th March 1914.

Periyar Irrigation System

Appointing the Hon'ble Mr. H. F. W. Gillman, I.C.S., assisted by Mr. O'Brien, Executive Engineer, to conduct an inquiry into the question of the working of the — in connection with a resolution moved by the Hon'ble Mr. K. Rama Ayyangar at the meeting of the Legislative Council held on 28th January 1914.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Read—the following papers :—

I

Resolution proposed to be moved by the Hon'ble Mr. K. Rama Ayyangar at the meeting of the Legislative Council to be held on 11th November 1913.

XXIV. This Council recommends to the Governor in Council that an enquiry into the Periyar irrigation system is essential and that the supply in the branches and distributaries should be fixed by the Engineer and the Revenue divisional officer with referenee to the ayakat under each distributary and the same should be published for the information of the ryots and that a daily report be called for from the subordinate officers of the Public Works Department by the Engineer and the Collector with the countersignature of some big pattadars.

II

Official Memorandum No. 1331/13-4, dated 28th November 1913.

A copy of the resolution regarding Periyār irrigation, notice of which was given by Hon'ble Mr. K. Rama Ayyangar at the last meeting of the Legislative Council, is forwarded to the Superintending Engineer. This resolution was not discussed, but will probably be brought forward at the next meeting and the Superintending Engineer is requested to submit a report on the subject in consultation with the Collector of Madura.

2. It is believed that at certain seasons difficulty has been experienced in supplying the existing ayacut and if this is the case the reason for this should be gone into, and explained and any possible remedies suggested. The report should reach this office before the 1st January next.

H. E. Clerk,
Secy. to Govt., P. W. D., Irrigation Branch.

To the Superintending Engineer, VI Circle,
with copy of the resolution referred to.
,, Collector of Madura with copy of the resolution referred to.

III

Letter—from S. B. Murray, Esq., Superintending Engineer, VI Circle.
To—the Collector of Madura.
Dated—Trichinopoly, the 3rd January 1914.
No.—34-655.

With reference to Official Memorandum No. 1331/13-4, dated 28th November 1913, from the Secretary to Government, Public Works Department, Irrigation Branch, I have the honour to forward herewith a copy of a letter I have received from the Executive Engineer, Madura division. Mr. O'Brien writes strongly and feelingly, and knowing the amount of care, thought and time which he takes over his management of the Periyār Irrigation system, I can quite understand why he should do so.

2. I infer from the wording of the resolution of the Hon'ble Mr. Rama Ayyangar that he considers the distribution of water throughout the Periyār area as it is now conducted is faulty, and that he wishes it to be put under other management. The failing, if there is one, is that at certain times the ryots are not given as much water as they would like to have for their fields. In my opinion every irrigation system should be managed on this principle. I cannot imagine any sane man working an irrigation system in such a way that there could never be any possibility of the slightest shortage of supply from the cultivators' point of view at any time of the year. Any system so worked would lose at least 60 per cent. of its efficiency.

3. You are, I know, thoroughly conversant with the working of the water distribution throughout the Periyār area, but I should like to mention a few facts connected with that working. There is a very complete telephone system all over the area. There is also telegraphic communication with the Periyār Lake. By these means the Executive Engineer and his Sub-divisional Officer always know how much water is available and how it is being distributed. Every day these officers receive intimation of the quantity of water being sent through the Lake tunnel, and the readings at Peranai, and at each offtake from the main canal, are also reported to them. They thus have complete knowledge of the quantity of water available for distribution and how it is being distributed. The Executive Engineer himself gives orders every day about the quantity to be sent down each branch channel, and he can tell in a moment from the readings at the heads of other channels if the distribution is being properly effected. It would be impossible for a subordinate in charge of distribution to disobey orders without being detected. The whole system is as complete and thorough as the block signal system of a railway, and I have no hesitation in saying that the distribution of water over the Periyār area is being conducted in as perfect a manner as it is possible to contrive. I have had personal experience of almost all the large irrigation systems in the Madras Presidency, and I know of none where the water is so carefully watched and so equitably distributed as in the Periyār system.

4. In paragraph 2 of his Official Memorandum the Secretary to Government, Public Works Department, Irrigation Branch, refers to the difficulty of supplying the existing ayacut at certain seasons of the year. This difficulty does undoubtedly exist, and it was experienced during the present irrigation season in a very acute form. The Periyār Lake did not fill this year, and the local rainfall at Madura has been very far below the average. In September the Executive Engineer was able to obtain only 925 cusecs at Peranai, and with this quantity of water he had to supply over 100,000 acres of wet land. This was an almost impossible task, but it was done, and done successfully. I leave it to you, as the chief Revenue officer of the district, to tell the Chief Engineer for Irrigation whether the present irrigation season has been a success or a failure. In my opinion this year's distribution of the very short supply available is a brilliant vindication of the present management.

5. In paragraph 2 above, I mentioned that if an irrigation system were managed so that every ryot would always get all the water he wanted, the system would lose 60 per cent. of its efficiency. To comply with such a condition, a duty certainly not exceeding 40 would have to be worked to. In the previous paragraph I said that last September the supply fell to 925 cusecs. This with a duty of 40 would limit the total area available for irrigation to 37,000 acres, whereas over 100,000 acres have been successfully supplied with water this year.

6. I shall be obliged if you will send this letter on to the Chief Engineer for Irrigation at an early date, with any remarks you may wish to make.

ENCLOSURE.

Letter—from M. O'BRIEN, Esq., Executive Engineer, Madura Division.
To—the Superintending Engineer, VI Circle.
Daed—the 13th December 1913.
No.—1554-S.E.

With reference to your No. 10001, dated 9th December 1913, I have the honour to report as follows :—

(1) I shall begin by stating that so far as I know the Honourable Member who proposes to put the resolution in question is entirely ignorant of the working of the Periyār system. He

does not, I believe, own any land under the system and merely voices the complaints of a small body of vakils who happened to buy some land in the Periyār sales. I have met these men often and after a long experience of their complaints, I have been forced to conclude that their difficulties are in much greater measure due to their system of cultivation than to defects in the regulation of water. These men are all busy men, and can devote but a very small fraction of their time to their lands. They have to depend entirely on so-called tenants, a very poor class, in my experience. These men, as some of the vakils have admitted to me, require constant supervision to get them to do any work at all, and I know there are constant rows between them and their landlords. In addition, many of them own lands of their own, and these naturally receive most of their attention. I believe also the remuneration they receive is anything but generous. Now anybody who has any experience of irrigation knows that to get the greatest benefit from irrigation the ryot must pay constant attention to his fields and I think most of the complaints of these proprietors arise from their inability to devote this attention. I do not think the Honourable Member is voicing the complaint of a single genuine ryot who lives in his village and attends to his lands himself.

2. In no system in Madras is such a complete record maintained of the water readings in the channels as in the Periyar system. These readings are telephoned to me and to the Sub-division officer each day at 12 noon and are subject to frequent check both by the Sub-division officer and myself. Any Executive Engineer or sub-division officer who knows the system should be easily able to detect if wrong readings are sent in, as it is easy to tell what a certain water level in one place should give in another place. The proposer of the resolution is aware that these readings are taken and I presume he intends to suggest that the readings are not taken correctly and are deliberately falsified. If such a suggestion is made, I consider he ought to be asked to prove it or to give his grounds for the suggestion, as I think it is a serious accusation against all the officers employed in the regulation of water — an accusation that should not be permitted to be made without definite proof.

3. What I think the Honourable Member and his friends really want is to compel the Public Works Department to maintain certain levels in certain channels in which they are interested throughout the year. Now the Periyar system is run on direct flow and so far as is possible, a steady unvarying supply is kept in each channel. Naturally with a varying depth of water at the head of the canal, it is impossible to avoid varying depths in the channels at times and unless the officer in charge is allowed an absolutely freehand in varying the depths according to circumstances, he might as well give up all attempt at regulating water and might as well not be there at all. The impossibility of avoiding such variation was explained to the Honourable Member and his friends in Madura last year at the conference held by Sir John Atkinson, but they do not seem to have understood the difficulty. The proposal about the daily reports is in my opinion ridiculous. It would lead to endless delays, misunderstandings and disputes, and the working of the system is in my opinion difficult enough without making it more so. I can imagine the gauge readers hunting in the villages for the so-called big pattadars, while the Sub-division officer or myself are waiting impatiently for the readings and I can imagine the trouble when the readings were received too late to make any arrangements if a change were required. I can also imagine the disputes that would arise and the bullying of the gauge readers

4. There is difficulty at certain seasons in supplying the ayacut, and this can readily be imagined from the following considerations. The area below Peranai is about 110,587 acres, of which 60,838 is under tanks, which are of all kinds, ranging from very big to very small. The direct area is about 49,749 acres. Now the maximum discharge that the lake supply will give in the canal in very dry weather, such as we had this year in August and September, is only a little over 900 cusecs. A diagram giving exact figures will be sent shortly. If there is no local rainfall the tanks depend entirely on the Periyar supply, and unfortunately this trouble happens generally in August and September when transplantation is beginning in the single crop area. The local rainfall in Madura is very uncertain, this year being a very good illustration, with a rainfall of about 18" below the average. It may readily be imagined that when there is a failure of local rains there is considerable difficulty, and this difficulty is always likely to occur, and cannot be avoided. The only thing to be done in such a case is to trust the officer in charge to distribute the water he has got to the best advantage, and this, I submit, is being done. The system is so well regulated that very great flexibility is possible in distribution, and that is what saves the situation. Take this season for example with its scanty rainfall. Practically every acre has been cultivated in proper time, there has been no serious trouble anywhere, and the crops everywhere are in flourishing condition, while outside the Periyar area, in Sivaganga and Rāmnād, there is, I am told, absolute failure of wet crops. I think the Periyar ryots may congratulate themselves on their position, and I know that many of them do.

5. I think it is time that this habit of decrying the Periyar system were put a stop to, and the way to do this would be in my opinion to refuse to entertain complaints such as made by the Honourable Member, unless he can prove that loss is being caused to anybody by the working of the system. That I do not think he can prove. I do not want to suggest that the working of the system is perfect. I know it is not, but I submit that ignorant criticism such as the Honourable Member advances is very discouraging, and in no way improves matters. I

would also suggest that Government offer to buy out the discontented owners of sale lands at the original selling price *plus* a certain amount for improvements. If such an offer be made it will certainly be refused, as these lands if sold in the open market to-morrow would fetch not less than five times their original selling price. In fact I think Government did very badly over the sales, and the present owners made an extremely good bargain when they purchased them. That they should be dissatisfied is amazing.

No. 7 *C.E.*/655, *dated* 3*rd January* 1914.

Copy forwarded to the Chief Engineer for Irrigation for information.

S. B. Murray,
Superintending Engineer, VI Circle.

IV

D. Dis. No. 62 *Rev*, *dated* 6*th January* 1914.

Forwarded.

2. I observe that Government required a reply to their reference by the first of January. It is undesirable therefore that I should delay the transmission of these papers. Being in camp and without access to records, particularly those relating to the numerous petitions received regarding Periyar irrigation, I must confine myself to a few general remarks.

3. I observe that this resolution, as drafted, begins by recommending a general enquiry into the whole system of Periyar irrigation and then descends to the particular and suggests certain alterations in the procedure connected with the supply to the branch channels and distributaries. As regards the latter point, the main proposal appears to be that the Revenue Department should be formally associated with the Public Works Department in deciding on the amount of water which is required to flow over each sluice, that this amount once fixed should not be varied, and that a daily report, showing that the water flowing over the sluice has not fallen below the standard, should be submitted by the Public Works Department subordinate to the Executive Engineer and the Collector.

4. If I have correctly stated the proposition, it seems to me to stand self-condemned The amount of water required over each sluice is not constant : it depends on the progress of cultivation, and a quantity which would be sufficient when all the ayacut has half-grown crops and no new cultivation, would probably be insufficient when the preliminary floodings are in progress and would be excessive during the days preceding harvest. I cannot conceive any method by which the suitable supply of water can be made automatic, which is what the proposition seems to imply. There must be regulation by a Government officer and the officer who is best in a position to undertake this regulation is the Executive Engineer. I cannot see that anything would be gained by associating a Revenue officer with the Executive Engineer for this purpose. The assumption presumably is that a Revenue officer will be able to assist towards a practically satisfactory—as distinguished from a theoretically satisfactory—distribution, by his knowledge of the nature of the soil and the actual conditions of cultivation in a particular area. The Revenue officer, however, knows no more—but probably less—of the special requirements of particular fields than the Executive Engineer and his subordinates, for the latter, now that the larger Engineering problems have been solved, have little to do in connection with the Periyar but to regulate supply, and they are in the best position to ascertain the relative irrigation requirements of every field in the comparatively small area with which they deal.

5. The idea really underlying the proposal seems to be that the Executive Engineer is so much obsessed with the idea of piling up revenue in order to render the project self-supporting, that he adopts an unduly miserly attitude in the matter of supply, For such a belief I find no good ground, at any rate under Mr. O'Brien's regime. It is probably assumed that a Revenue officer, not being directly concerned

with the return which the project pays on its capital, would be more generous—or to use a somewhat elusive term "sympathetic." If he were, his generosity as often as not would be at the expense of others, the general tax-payer or the lower ayacut holder as the case may be. He would have little knowledge and practically no responsibility, and it stands to reason that to give him, in these circumstances, a deciding voice in these intricate questions of distribution would be, administratively, altogether unsound. The influence of the Revenue Department is not, as might be inferred from the terms of the proposition, altogether absent at present: when petitions alleging want of water are received and on enquiry appear to have some foundation in fact, and to deserve consideration, they are passed on by the Collector to the Executive Engineer and if necessary pressed upon the latter's consideration. But the influence of the Revenue Department is thus exercised only through the expert officer. The ultimate responsibility rests on the Executive Engineer and this I submit is as it should be. I have myself inspected with Mr. O'Brien a certain number of cases in which it was alleged that the supply arrangements were defective and have found him invariably ready to devise and introduce remedies where possible, and, whatever statements may be made to the contrary, I believe that his attitude is the same towards complaints made to him direct by the ryot and not emphasised by my intervention.

6. I think, personally, that a great tactical error is committed by those interested in the Periyar area in their differentiation between the Public Works officers and Revenue official in these matters. As I have said, the large and purely technical engineering problems connected with the Periyar have fallen into the back-ground. The Executive Engineer and his subordinates are now mainly engaged as a distributing agency; their functions in this respect are merely those of a specialised branch of the regular revenue administration. They are guided by exactly the same general principles as the Revenue official. While appreciating the implied compliment to the Revenue Department, involved in the suggestion that its intervention would be a boon to the public, I fear I can find no good ground for the proposal. The implied suggestion that the Executive Engineer and his staff are the natural enemies of the ryot, whose machinations must be restricted by calling in the assistance of another branch of the administration is not calculated to improve the relations between the Public Works Department and the people and the sooner that the ryot learns that it is primarily to the Executive Engineer that he must look for, and from whom he may expect full consideration of his irrigation grievances, the sooner will a solution be reached of the undoubted difficulties in detail involved in the Periyār distribution.

7. As for the daily report of the readings at the sluices to be sent to the Collector, I cannot see what object they would serve beyond swelling the mass of records of my office. It can hardly be seriously contemplated that, whenever the reading falls below a certain figure at any sluice, a detailed enquiry should be made by me as to the reason for the reduction in supply. To look only at one aspect of the matter the correspondence on such a question would necessarily take some weeks, if not months, and by the time it was concluded, the harvest would probably have been reaped. No general principle could be evolved from a particular instance, even if the reduction was found to have been an error—the whole time spent would have been virtually wasted. On the other hand, the daily reports which the Executive Engineer receives by telephone furnish him with valuable information on which he can and does act. The suggestion in the resolution is that these reports are sometimes false and for that reason should be confirmed by the evidence of big pattadars. It is difficult to conceive a procedure more cumbrous than implied in the suggestion. For the banker to seek out each day a big pattadar who will consent to visit the sluice and read the gauge would present obvious difficulties! there would be no guarantee that the sluice would not be closed again after the big pattadar had seen it; and so far as concerns this suggestion that the subordinates are at present influenced by corrupt motives in irregularly opening and closing sluices, even a big pattadar might sometimes be content to turn a blind eye to the gauge if satisfied that his good offices in this respect would be made up to him by special consideration for his irrigation interests on other occasions. The only way to ensure that the reports given to the Executive Engineer are true is by constant inspection and verification, and this, I understand, is now carried out.

8. But while finding nothing to recommend the detailed suggestions contained in the proposition, I am in some sympathy with the suggestion that an enquiry should be made as to the general adequacy of the supply for the ayacut supposed to be irrigated particularly in the hot weather. In the absence of papers I cannot give accurate details but my impression is—and the Superintending Engineer's letter appears to support the view—that there is a considerable discrepancy between the area—60,000 acres, I think—which it is supposed can raise a kodai crop, and the area which in practice does receive a sufficient and assured supply for this purpose. In common with my predecessors I have made attempts to fathom the mystery, but without arriving at any definite conclusion. This uncertainty as to the true position of affairs is very embarassing to the Collector in dealing with detailed complaints and suggestions regarding Periyār water, and I should personally welcome an enquiry made by some senior officers of the Revenue Department who could devote a month or two to the attempt at a final understanding, if not a solution of the true problems really involved. Such an enquiry could best be made in August or September.

A. R. KNAPP,
Collector of Madura.

Copy to the Superintending Engineer, VI Circle, Trichinopoly, with reference to his letter No. 34/655, dated 3rd January 1914

V

Telegram—from the Joint Secretary to Government, Public Works Department, Irrigation Branch.

To—the Executive Engineer, Madura Division, Madura.

Dated—the 21st January 1914.

No.—11 T.

Your No. 1554 S. E., dated 13th December last regarding irrigation under [the] Periyār system. Please wire how much if any of [the] Periyār area has been left uncultivated or has proved a failure this year. Detailed figures [are] not required. Approximate general estimates will suffice.

VI

Telegram—from the Joint Secretary to Government, Public Works Department, Irrigation Branch.

To—the Collector of Madura.

Dated—the 21st January 1914.

No.—12 T.

Your Endorsement D. Dis. No. 62-Rev., dated 7th January 1914, regarding irrigation under [the] Periyār system. Please wire how much if any of [the] Periyār area has been left uncultivated or has proved a failure this year. Detailed figures [are] not required. Approximate general estimate will suffice.

VII

Telegram—from the Executive Engineer, Madura Division, Madura.
To—the Chief Engineer for Irrigation.
Dated—the 22nd January 1914.

Your 11/T. No failure anywhere on contrary very good crops everywhere; water also supplied Sivaganga zamindari.

VIII

Letter—from M. O'Brien, Esq., Executive Engineer, Madura Division.
To.—the Superintending Engineer, VI Circle.
Dated—the 3rd January 1914.
No.—3 S. E

In continuation of my No. 1554-S. E., dated 13th December 1913, I have the honour to forward herewith a tracing * of a diagram showing the discharges from the Periyar lake and the discharge in the main canal from 20th August to 31st October 1913. It may be noticed from this that there was a big loss between the lake and Peranai during August and part of September amounting on some days to as much as 190 cusces or about 17 per cent. of the total discharge. These months were exceptionally dry in the Suruliar valley and there were frequent complaints from the ryots in those parts. During this period too there was very little rain at Periyar and the lake ran dangerously low, so much so that at the beginning of October I had to restrict supply, and if there had not been rain in October at the lake, the state of affairs would have been very serious. The July rains also were very short at the lake, the highest level to which the lake rose being 144·40. In most years it fills in July and often surpluses.

* Not printed.

2. I think this diagram disposes of the old argument that it does not matter how much water is drawn off by the Suruliar channels as the surplus runs back again into the river. The ayacut under the Suruliar valley channels is 11,535 acres first crop and 9,695 acres second crop. The ayacut under these channels is not, I think, on the increase as extensions are forbidden. And there are very heavy penalties for unauthorised irrigation and I believe these penalties are strictly enforced.

3. In years like the present one when the rainfall is short and especially when it is short in the Suruliar valley there must be scarcity of water in the Periyar channels. If the north-east monsoon is a total failure as it may be in some years, there is, I think, bound to be a big loss of crop and I do not see how it can be prevented.

No. 72 C. E./655, dated 16th January 1914.

Copy forwarded to the Chief Engineer for Irrigation for information in continuation of this office endorsement No. 7-C. E./655, dated 3rd January 1914. Mr. O'Brien's diagram shows clearly that local rainfall is an important factor in a successful season for the Periyar irrigation.

S. B. Murray,
Superintending Engineer, VI Circle.

IX

Telegram—from the Collector of Madura.
To—the Chief Engineer for Irrigation.
Dated—the 24th January 1914.

Government telegram, dated twenty-first. Periyar area left uncultivated or has proved a failure. Approximate estimate is 3,150 acres in kodai and 2,200 acres in kalam in double crop area. No such cases in the single crop area for kalam.

Order—No. 153 I., dated 25th March 1914.

At the meeting of the Legislative Council held on the 28th January 1914 the Hon'ble Mr. K. Rama Ayyangar moved a resolution recommending that an inquiry be instituted into the working of the Periyār irrigation system.

The resolution was discussed in Council and an extract from the proceedings of the Council is appended.

2. The Government, while they consider that the detailed suggestions made by the Honourable Additional Member cannot with advantage be adopted, recognize that there is some doubt whether the conditions ensure the supply of sufficient water

for the whole of the double-crop lands in the system. They accordingly direct that an inquiry should be made into the facts bearing on this particular question. The Hon'ble Mr. H. F. W. Gillman, I.C S., will be deputed to make this inquiry. He will be assisted by Mr. O'Brien, Executive Engineer, who will act as professional adviser.

3. The inquiry will be directed to the following points :—

(*a*) The extent and situation of the lands irrigated from the main channel and its branches to which water is usually taken for the cultivation of a wet crop during the kodai crop season which commences in June, as soon as the lake is opened.

(*b*) The necessity or otherwise of revising the area to which water is restricted during the early part of the kodai crop season so as to include or exclude lands which can or cannot be supplied during that season.

(*c*) The supply which can usually be distributed from June to August to the area to be irrigated and the reasons for considering this supply to be adequate or inadequate.

(*d*) The area and situation of lands registered as double-crop wet, but lying outside the limits of the area which is, or is proposed to be, the double-crop area and how these lands should be treated.

(*e*) The desirability of amending rule III (*c*) of the Periyār water-rate rules contained in appendix I to Board's Standing Order No. 4 so as to make it possible for applications for a permanent supply of water to be made and granted in respect of the kodai as well as the kalam crops and the general suitability of the present Periyar water-rate rules.

4. A suitable time for commencing the inquiries will be about the middle of July next. The report on the results of the inquiries made should be submitted to Government.

(True Extract.)

W. M. Ellis, Col., R.E.,
Ag. Secretary to Government, P.W.D.
(Irrigation Branch).

To the Chief Engineer for Irrigation.
,, Superintending Engineer, VI Circle.
,, Hon'ble Mr. H. F. W. Gillman, I.C.S.
,, Revenue Department, with copy of notes.
,, Board of Revenue (Revenue Settlement).
,, Public Department.
Editors' Table (order only).

Forwarded to the

(By Order.)

Deputy Registrar.

Annexure to G.O: No. 153-I., 25th March 1914.

Extracts from the Proceedings of a meeting of the Legislative Council held on the 28th and 29th January 1914.

PERIYAR IRRIGATION SYSTEM.

The Hon'ble Mr. K. RAMA AYYANGAR :—' The resolution which I have the honour to move runs as follows :—

IV. This Council recommends to the Governor in Council that an inquiry into the Periyar irrigation system is essential and that the supply in the branches and distributaries should be fixed by the Engineer and the Revenue Divisional Officer with reference to the ayakat under each distributary and the same should be published for the information of the ryots and that a daily report be called for from the subordinate officers of the Public Works Department by the Engineer and the Collector with the countersignature of some big pattadars.

" My Lord, this is a resolution the substance of which has been sought to be placed before this Council by various Honourable Members for some years past. The Hon'ble Mr. Ramabhadra Nayudu, Mr. Shanmukham Pillai who was in this Council and I myself have been trying to elicit information from the Government which will enable us to see that steps were taken to remedy the existing difficulties in the Periyār irrigation system. I have come before this Council; but unfortunately for me there was a previous resolution which was discussed at the last sitting of this Council moved by the Hon'ble Mr. Ramachandra Rao relating to the deltaic tracts of this Presidency. That discussion I shall take advantage of for not pressing portions which would be unnecessary to repeat here, but, in spite of all the discussions we had then, I would press upon this Council the necessity of the prayer asked for, and moved by me in this resolution. I think it is a matter that concerns a large area which yields over and above the previous irrigation revenue that was being realized from that tract, about 6 lakhs or 5·85 lakhs, to be more accurate. This has been realized over and above the two lakhs of rupees that was being collected from that area for the old irrigated lands. In fact, the Periyār irrigation system has been in vogue these 17 years; and all the time in spite of repeated attempts we have not been able to see that the whole system is brought to any order. Honourable members of this Council might have very clearly heard that in that area there have been repeated complaints, for various reasons, which I will analyse later on and which can in my opinion be solved only by the inquiry that I suggest If we adopt methods that I refer to, if not in the same words that I have put but in the spirit of it, it will enable us to bring the difficulties of the ryots to the lowest possible depth.

" My submission is that in the Periyār system the whole tract has not been laid out properly. I shall take the general reasons first, and then go into the special ones. In fact, the previous existing channels have been utilized, as far as possible, for the diversion of the water-course and some of the tanks there have been utilized for distributing water over a larger area than they were previously commanding. I will give only one example of it, so that I need not repeat in detail what is the effect in other places. The channel that takes water to Todanari tank has to irrigate 3,000 acres of land. This Todanari tank had its rights established to certain channels by means of previous decisions which have gone up to the High Court. The channel which was held to be the sole channel for this tank is now being utilized for bringing Periyār water allowing branches from this channel to irrigate lands under several tanks such as Chinnanapatty tank, etc. After the water enters the Todanari tank we find that it has again to supply from this tank another set of four or five tanks inclusive of Samayanallur, Paravi, and other tanks. The water is not quite sufficient for reaching that tank; and in fact the whole area that is being irrigated by this channel comes to about 3,000 acres of which below Todanari tank and inclusive of Todanari we have got about

800 acres to be irrigated and above Todanari tank it comes to about 2,000 acres. Where water is allowed to flow into the tank it is found so very difficult to supply in time more tanks, so much so that Paravi villagers have been repeatedly petitioning the Public Works Department and Revenue officers to relieve them from their lands being classified under the Periyār system. They will be satisfied, they say, if they will be allowed to revert to the old system because they say that water is not ordinarily allowed to reach the lands when the Periyār lake opens or within measurable time of the Periyār lake being opened. There are various tank owners who complain like that, six or seven. The Todanari tank which had its rights established has eight villages to interfere with the channel; and there have been criminal cases disposed of against those who wanted to bund this channel. Yet we find bunding going on especially in the first portion of the year. So when water is let down it is not found possible to regulate it properly. My point in this connection is that it has to be examined and found out if other channels or sluices could be opened in other places which will more conveniently irrigate all these 3,000 acres without difficulty. It is not that such arrangements could not be made. In fact these systems have been adopted and therefore probably it is found difficult to change them all at once. And representations made have to be put off because officers themselves are engaged in the distribution; and the general change of the arrangement of the channels again is not a thing to be adopted without a regular inquiry. Therefore the first point to be urged is that in the case of most of these lands it will be necessary to arrange channels to take off from the branches or the main channel which will enable larger areas to get better supply of water

"Then with reference to one branch of the channel, channel No. 4 I understand that it is one of the channels which irrigates a very large area. The water taking off to the branch channel is not sufficient and is not felt to be quite adequate to give a full supply to all the area that is irrigated by that branch channel No. 4. That is a point which deserves attention and a full inquiry will be needed.

"The next set of things that need inquiry is, we find that various lands are on a level higher than the sluices which are intended to irrigate them and various lands are on a lower level than the other lands under the same sluice, so much so that it becomes almost impossible for the owners to arrange amongst themselves to irrigate the several lands. A proper investigation and alignment of channels will be an absolute necessity if the whole system is to go on without much of complaint. It has to be done under each branch. I understand that in Papakudi we have lands, about 500 acres in extent, which are supplied by one sluice. About sixty or seventy acres are on a higher level than the remaining area and therefore it becomes impossible for the ryots under that sluice to agree amongst themselves to get a full supply for the full 500 acres. Similarly in other branch channel, ninth branch channel, there are sluices taking off from the fourth supply branch—I speak subject to correction. There again, there are lands which could not be irrigated properly by the sluice that now works. Various other places might be mentioned. The whole system will have to be examined and corrected if matters have to continue without much complaint.

"The next point that I will draw the attention of the Council to is the supply of water for the *kodai* crop. In the Government reports it appears as the first crop and the second crop. The first crop is long crop and the second crop is the *kodai* crop. The *kodai* crop cultivation is to commence about the beginning or middle of May at the latest. But what happens is that when the lake is not full enough or for other reasons the department opens the lake at a period which is not quite convenient for the cultivation of the *kodai* crop, and even under the reduced acreage the second-crop area has been fixed, as far as I see from the papers, at about 50,000 acres and all that area has to be supplied with water and whether they cultivate or no, they are bound to pay revenue to the Government For all that area water must be let down which will in fact give the necessary supply and at proper season. The question as to what the proper season is has been engaging the attention of the Collector, Public Works Department officers and I think some ryots have also been called together. A satisfactory solution has not been arrived at for various reasons which I do not think it necessary to mention here; but an inquiry alone can enable the officers to agree and come to a definite conclusion about this matter.

"Connected with this is another question. Periyār irrigation is now settled at about 125,000 acres. It is expected to improve and probably originally it was expected to run up to 190,000 acres. At present they cultivate 125,000 acres in all. Of this area it is found that 50,000 acres have to be supplied for two crops, the Public Works Department officers resolve upon allowing water to area more than the allotted area. When asked about reasons how they decide upon that, they say that when they find water wasted, or when there is excess water they sell water to other people when it is a source of profit to Government. I do not object to such sales of water that might be wasted but I do want that the principle of such sales will have to be settled by an inquiry. A previous interpellation that was put in this Council was answered that water that was wasted was actually sold. Under what circumstances and for what areas such sale took place was not mentioned. Actually I find that without supplying the water that would be necessary for a single soaking or two for an area or without providing water to a particular landlord whose crop might wither for want of such water, what is done is that from the beginning of the cultivation season or from the beginning of the time they do not have even before the first ploughing rains, water is allowed to flow into an area not covered by the Periyār. Once they agree to supply water like that they have to continue water till the whole crops mature and that kind of supplying extra area always brings on trouble. If the supply is commenced in November or December and the crop matures only about the end of March or the beginning of March, the supply has to continue till the closure of the lake and at a time when there is no further supply to the lake. So that I find from certain figures that I called for from the Secretary to the Public Works Department that on the 1st March the lake level was 130·95 in 1913 and on the date the lake was closed it was 122·30. That is at the time when the Periyār usual area had almost been cropped. There was only very little area which deserved this supply and there was also the giving of water to other area. The lake level had to go down to 122·30 within 20 days and the effect of it was that till the end of June 1913,—when alone water rose from 122·30 to 127·00 they could not open the lake to supply water for *kodai* cultivation. So a proper inquiry alone will enable the Government to decide the method of granting water even for a short time, and if so for what purposes and for what time it should be allowed and continued. These are all matters to be decided. If, for example, after November, when we do not ordinarily expect rains in these parts, there is a continuous supply allowed to run into other areas, the effect will be that in spite of necessity to close the lake, water will have to be continued to flow also to the extra area and the lake level is likely to be reduced considerably with the effect that it could not be opened again in time unless there have been freshes in the middle. Of course if there are rains on the hills earlier and the lake level is maintained it may be opened in time but that is not what has to be considered in this matter. The Government have 50,000 acres which they are bound to treat as double-crop area for which they get full assessment irrespective of the question whether the ryots cultivate those lands or not For 50,000 acres to have water for both crops it is not difficult to arrange at all. The difficulty arises only in not fixing the method of disposal of water at the end of the season for closing the lake. I say a proper inquiry and a proper decision as to the method of disposal would considerably help officers in arriving at a decision in this matter. It is not a question in which anything but an inquiry can decide the point. It cannot be arrived at all at once, because if water is supplied by the area to other areas, the supply will have to be also made till the crops mature And if water is supplied in quantity that can be stopped at any time, that would not interfere with the lake level. An arrangement of that kind will have to be come to after consideration. In regard to that matter I find from a letter as regards the sale of water to the Sivaganga zamindari, this is what the Hon'ble Mr. Clerk wrote: 'Periyār water was 'supplied to about 66 tanks in the Sivaganga zamindari from the tail ends of channels 'and the water would have gone to waste if it had not been sent to the above tanks. 'The supply was mostly given in January, February and March The quantity of 'water so supplied is not known as the supply was given through open cuts and no 'records were kept of the depths of water passing through them. The extent so 'irrigated in fasli 1322 was 1,773 acres of first crop and 122 acres of second crop 'from which a water-cess of Rs. 7,458 was realized.' This answer will do, to show

that there is no principle observed in the sale of this water. If from 1st March to 20th March the lake was open and in March also water was supplied to other villages not covered by the Periyār area and if we find as a fact that 8½ feet of water in the Periyār lake has gone down from the 1st to the 20th March—I speak subject to correction—it must be a great supply causing serious loss. One foot of water in the Periyār lake gives about five days' supply for the Periyār area. Whatever that may be, 8½ feet of water have had to be sent down from 1st to 20th March and within that period water has been supplied also to a tract beyond the Periyār area. If 5 out of 8½ feet could be retained for the opening of the lake at an earlier season that would certainly ensure a supply of 50,000 acres bound to be supplied for both crops. It will also ensure an earlier opening of the lake and also give greater contentment. Therefore that is a point which deserves to be settled after an inquiry.

"The next point which I will place before the Council in connection with this matter is the most difficult question as to the quantity of water that has to be supplied during the first months after the reopening of the lake. That seems to have caused considerable trouble in the whole area. The Public Works Department officers seem to proceed upon certain formulæ algebraical, which gives them certain cusecs to supply water for a particular area How these figures were arrived at we cannot now say. The whole area was dry waste which has been sold by Government as double crop or which has been reclaimed by ryots at very high cost. In fact, they do not have an alluvial soil which is seen in all the existing grand irrigation systems like the Gōdāvari. Kistna, Cauvery or other systems. The lands are porous and mostly gravelly and the water that is ordinarily allowed to flow into the fields does not remain there as much as it would on other lands where you have silt formation, and clayey soil more in abundance When we actually go to the fields this Government formula does not help us at all. Where water is supposed to irrigate 5 acres it does not moisten half an acre My statement may look an exaggeration, or may be felt to be an exaggeration, but on actual, experiment in this matter I am sure I will be supported by some of the revenue officers who have been on the spot and examined this matter. A regular examination of the nature of the land under each sluice and of the quantity of water needed for lands irrigated by that sluice will have to be made and the quantity of water to be supplied to each sluice will have to be regulated. Until that is done it will not give satisfaction to the people there. Probably in Sholavandan, Mannadimangalam and other villages in which there are wet lands, for centuries this difficulty will not arise because water let down will not be soaked down. But under the fourth branch channel and other channels there will be absolute necessity to go into the question as to what has to be done. Originally officers in charge probably knew nothing of the state of things. They had vents at these sluices of a particular size and they felt the necessity to have them like that and the supply was made freely very often. On a calculation of an algebraical formula vents have also been shortened in many places recently, the effect being that there is no supply which will be found to be even half of the supply sent down previously by the same sluice and the lands irrigated there could not be irrigated in a way that even one-tenth of the area under some places could be kept moist for the purpose of cultivation during the first portion of the season. Here again, I have to make one observation. Probably in the rainy season when lands are already wet with rains it does not take so much water to keep them wet and ready for wet cultivation. But about the beginning of May and June Madura is very hot and except late in June we do not have showers at all. And in previous five months there is extreme heat and their effect is that the soil sucks up much more water than under ordinary circumstances."

His Excellency the PRESIDENT (*interrupting*):—"The Honourable gentleman has two minutes more."

The Hon'ble Mr. K. RAMA AYYANGAR (*continuing*):—"That is a point in which inquiry alone will remedy matters. One other matter is that we have as many as 50,000 acres of land cultivated for double crop It will be found that at the tail end there are lands which ought to be taken away from the acreage of double crop. It will be proper that the Government should have an inquiry to find out in what cases it will be difficult to supply at the tail end of the channel. If that area is remov

from the list of the double-crop area that will avoid considerable complaints from the ryots. A few months back when the settlement officer was there some of us went with him along the fourth branch channel and found that various lands could not be cultivated even though one and a half months' supply was let down. Of course, plenty of water is let down, but it is shut down by means of screws so as to see that it runs through to the last channel. It is in coming through the distributaries that you will find such a small quantity and you will find that it does not enable the ryot to cultivate as much as he ought to. As regards the subordinate officers they must submit diaries. I would make that suggestion to avoid considerable malpractices which are going on. It is almost certain that the *jari* villages get their lands filled much earlier than double-crop lands and these are things that must cause much hardship. The proper way is to undertake a regular inquiry as to the sort of record which will indicate the amount of water that has to be let down from a particular sluice and the control of the same by means of this kind of communication between the Revenue Department and Public Works Department subordinate officers. The method proposed by me in the proposition or some other method the Government might decide upon will help the Government to put down corruption and see that ryots are benefited and their grievances are heard. With these few words I move the resolution."

The Hon'ble Mr. CHIDAMBARANATHA MUDALIYAR:—"I second the proposition moved by the Hon'ble Mr. Rama Ayyangar."

The Hon'ble Sir HAROLD STUART:—"Your Excellency, I am glad that the Honourable Member has not pressed the details of his resolution, because I think he would have found it very difficult to justify the covert attack he has made on the officers of the Public Works Department. There is, I make bold to say, no system of irrigation in the whole of this Presidency which is so well managed and so carefully managed as that of the Periyār. It is peculiarly well provided with a telephone system and the Engineer in charge of it nurses his water and distributes it through his channels and minor distributaries in the same careful and detailed way as a Traffic Manager manages the traffic of his railway. It is a peculiarly unfortunate year the Honourable gentleman has selected for this attack upon the officers of the Public Works Department because this year has been an extremely unfavourable one both in the matter of water in the Periyār lake and local rainfall; and yet owing to the untiring attention of Mr. O'Brien there has hardly been any loss of crop in the whole of that great area. I have a telegram here in answer to an inquiry from me in which it is stated 'No failure anywhere; on the contrary very good crops everywhere, water also supplied to the Sivaganga zamindari.' I do not think I need go into any detail to show how entirely impossible are the suggestions which the Honourable Member has put down in his resolution. Not a single one of them could be carried out, but I will meet him thus far: he has said (it has often been said) that there is not sufficient water to supply the whole of the double-crop lands. It is time that that view was substantiated by really good evidence or was definitely met. I therefore propose to order an inquiry to be made locally into the facts of that particular case. I do not think that the Honourable Member himself will require me to do more than that; he does not want me to hold a Government inquiry as to the level of the sluice in this particular channel or that or as to the flow of water through a particular tank to another tank. That is a matter which I am sure local authorities are competent to settle and are ready to settle. I dare say that the Honourable gentleman may not wish to press his resolution after hearing the speech I have just made to the Council; but if he does, I shall be obliged to resist it. I will, however, make the inquiry I have just mentioned."

The Hon'ble Mr. K. RAMA AYYANGAR:—"In reply to the Hon'ble Sir Harold Stuart's as regards the first observation that the Periyār area is completely under the control of the Executive Engineer and managed by him satisfactorily I have to say that it is under his control in the sense that he could let down as little water as he could possibly do. That he can command it at any time and that no sufficient water is supplied is also what I don't deny. I am not at all saying before this Council that the officers themselves do not exert their best, but I beg to differ from the Hon'ble Sir Harold Stuart when he says that the whole department is absolutely under control

the like of which probably he has not seen. I should say that to most people the telephone system is not known. That system is utilized by the Public Works Department officers and they may be giving instructions. Where they do giv instructions, I know they give instructions to reduce water more often than to add to the supply. It is useless for them to give instructions like that without understanding what water has to be supplied and at what season. It is not a matter that can be solved by the Engineer alone all at once with a theoretical formula. That he depends upon that is my main complaint. I am perfectly sure that once the matter is concluded by an inquiry, there will be no trouble and the Periyār system will be one of the best systems available in the world. The point is whether, with all these conveniences in the hands of Government, the Government would not make an inquiry and decide the amount of water to be let. When they begin seedling cultivation very little water is thought necessary. Water is let down subsequently—one month after—and one month is needed full supply so that lands may be cultivated wet and made ready for transplantation. All seedlings may be ready for being transplanted and then there is considerable difficulty. It is there they have to exercise considerable discretion and in exercising discretion they have not examined and gone into details and come to any conclusion. Particular areas can be very well selected and porous, clayey soil and similar soils can be found among the 125,000 acres. Government must catch hold of a few central stations where the supply could be found by scrutiny for particular period, to be sufficient to irrigate particular areas, so that they may be kept wet during the season of cultivation. That will considerably solve the position. If the Hon'ble Sir Harold Stuart, who has agreed so far to investigate the matter, will also ask the stations to be fixed and experimented upon, it will enable them to come to a decision as to the water required for particular soils. If he will agree with me that he will issue instructions to see to the levels of the several channels and the sluice arrangements to be made for supplying large areas not through tank but by sluices—if he will be pleased to agree with me, I shall be glad to withdraw the resolution. I will only expect a very favourable answer in this matter."

The Hon'ble Sir Harold Stuart :—" I cannot undertake to issue any instructions to fix the supply for each channel and distributary in the manner suggested in the resolution. That is quite impracticable. The Honourable Member cannot really mean that we should fix the supply for each channel and distributary and that that particular supply should be adhered to throughout the season. It would be quite impossible and quite unworkable. I will undertake an inquiry into the sufficiency of the water for the whole double-crop area. I do not think it necessary to issue instructions to the engineering staff to inquire into the inadequacy of this or that sluice. Any complaint addressed to them on the subject of a particular sluice is inquired into as a matter of ordinary business. If in any particular case inquiry is not made, the individual who has a grievance has the right of appeal to Government. I do not think anything further is needed in that direction. As I have said, I must oppose the resolution in its present terms."

His Excellency the President :—" Does the Honourable gentleman wish to press his resolution ?"

The Hon'ble Mr. K. Rama Ayyangar :—" With your Excellency's permission I had better say that the matter be carried out as far as possible. My request will be there and I am sure that the Hon'ble Sir Harold Stuart will help me as far as he could. With the concessions he made, I am sure I can make him more generous also before he issues his instructions. I withdraw my resolution."

With the permission of His Excellency the President, the resolution was withdrawn.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

NOTES CONNECTED WITH G.O. No. 153 I., DATED 25TH MARCH 1914.

[SUBJECT.—*Periyār irrigation system.*]

LEGISLATIVE DEPARTMENT.

I

Resolution No. XXXIV proposed to be moved by the Hon'ble Mr. K. Rama Ayyangar at the meeting of the Legislative Council, held on 11th November 1913.

This Council recommends to the Governor in Council that an enquiry into the Periyār irrigation system is essential and that the supply in the branches and distributaries should be fixed by the Engineer and the Revenue Divisional Officer with reference to the ayakat under each distributary and the same should be published for the information of the ryots and that a daily report be called for from the subordinate officers of the Public Works Department by the Engineer and the Collector with the countersignature of some big pattadars.

Submitted that two copies of this resolution may be forwarded to the Public Works Department (Irrigation)/Revenue with reference to No. (1) of the rules regulating Secretariat procedure in dealing with these resolutions in the Legislative Council. That department may be asked to be so good as to report in regard to the admission of the resolution at an early date.

2. A copy of the resolution may also be forwarded to each of the other departments of the Secretariat for information.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Under Secretary—
Secretary—

The admission of the resolution is separately under consideration.

2. The Additional Member has not specified what the grievances of the ryots under the Periyār system are. If the grievances are indicated, enquiries may be started and measures adopted to set right such of them as call for a remedy. The Additional Member suggests that the supply in the branches and distributaries should be fixed by the Engineer and the Revenue Divisional Officer with reference to the *ayacut* under each distributary and published for the information of the ryots Attention is, in this connection, invited to the Executive Engineer's letter No. 89-S.E., dated 21st January 1913, on page 6 of Dis. No. 926, dated 1st May 1913. It will be seen that there is a fixed level for each distributary, which is maintained as far as possible throughout the year. The ayacut under the distributary

A | is not the only consideration in fixing this level. The level is bound to vary with the nature of the season. When there is short supply in the river, the level has necessarily to be reduced. Again when there is heavy rain in the *ayacut*, there is no object in passing the full supply. The Executive Engineer considers that the water levels should not be published as there will be numerous petitions, if any variations are made owing to the above circumstances. It is stated that there are numerous gauges and the ryots can observe them and keep a record. The suggestion that the Revenue Divisional Officer should be associated in the fixing of water levels is likely to cause misunderstanding, if not friction.

3. The Additional Member also suggests that a daily report of the supply be called for from the subordinate officers of the Public Works Department, by the Engineer and the Collector with the countersignature of some big pattadars. From the Executive Engineer's letter referred to above it will be seen that the readings in each distributary are daily sent by telephone to the Executive Engineer and the Sub-Divisional Officer by whom they are recorded. It is not known what practical purpose would be served by their communication to the Collector. If the Collector wants the reading of a particular date, he can ascertain it from the Executive Engineer. As it is also open to the ryots to take the readings themselves, it is not clear why the countersignature of some big pattadars is suggested. It is believed that the readings are checked by the Sub-Divisional Officer during his inspection.

The same suggestion was made by, I think, Mr. Ramachandra Rao for Gōdāvari delta.

F. E. MORGAN—31-10-13.

P.K.S.—31-10-13.

F. E. MORGAN—31-10-13.

The Additional Member suggests that the supply in the branches and distributaries should be fixed with reference to *ayacut* under each. This is done already. If the Additional Member means that the same amount of water should be supplied throughout the irrigation season, the suggestion is absurd, as more water is required during transplantation and in times of local rain much less is required. The Executive Engineer has complete control over the distribution and is no doubt ready to give full weight to representations made by Revenue Officers. It is impossible for him to consult them before issuing every order.

The Executive Engineer gets daily reports of all water levels through the telephone and the countersignature of big pattadars would serve no useful purpose.

The present season has been a very difficult one for Madura owing to the heavy draw off by the channels in the Suruliyar valley. I have called for rainfall statistics I believe the rainfall was much below the average during the early part of the year.

H. E. CLERK—31-10-13.

Honourable Member—

The rainfall statistics do not show any very great deficiency in rainfall and that theory must be abandoned.

H.E.C.—1-11-13.

We must oppose the resolution. Revenue Department should see at once.

H. A. S[TUART]—3-11-13.

Revenue Department u.o. for perusal and return.

H.E.C.—4-11-13.

REVENUE DEPARTMENT.

Under Secretary—

The file may, it is submitted, be perused and returned to the Public Works Department (Irrigation Branch).

Secretary—

No further action is necessary in Revenue. The file may be returned to the Public Works Department (Irrigation Branch .

H. A. WATSON—5-11-13.

Yes. It is understood that the resolution will be dealt with in the Public Works Department. Meanwhile we have asked His Excellency for orders as to admission.

A. BUTTERWORTH—6-11-13.

To the Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Secretary—

Submitted.

G.V.—6-11-13.
P.K.S.—6-11-13.

This may be taken to Council.

H.E.C.—6-11-13.

Under Secretary—

Secretary—

This may await the receipt of the reports of the speeches in the Council on the subject, say, till 1st December 1913.

G.V.—14-11-13.
P.K.S.—14-11-13.

F.E.M.—14-11-13.

The resolution was not brought, as the Additional Member was not present. I am writing demi-official to Mr. Murray on the subject. It may lie over for a week.

H.E.C.—14-11-13.

* * * * *

His Excellency the PRESIDENT :—"The next resolution stands in the name of the Hon'ble Mr. Rama Ayyangar who is absent. The Hon'ble Mr. Narasimha Raju has expressed his intention of withdrawing the next resolution after that."

* * * * *

Secretary—

Submitted for orders. It is not known if any reply has been received from Mr. Murray to the demi-official addressed to him.

G.V.—21-11-13.
P.K.S.—21-11-13.

A draft memorandum herewith which may be sent to Revenue for acceptance.

H.E.C.—22-11-13.

To the Revenue Department u.o.

REVENUE DEPARTMENT.

Under Secretary—

Submitted that the draft official memorandum may be accepted in this department and the file returned to Public Works Department (Irrigation).

K.A.M.—26-11-13.
R.S.—26-11-13.

H.A.W.—27-11-13.

To the Public Works Department u.o.

PUBLIC WORKS DEPARTMENT.

Secretary—

The draft may issue.

P.K.S.—27-11-13.

H.E.C—27-11-13.

[Issued as O.M. No. 1331 I./13-4, dated 28th November 1913.]

Under Secretary—

The report called for from the Superintending Engineer so as to reach this office by 1st January 1914 has not been received in this office. A draft reminder * marked "urgent" is submitted for approval.

* Not issued as reply has been received.

V.K.—3-1-14.
P.K.S.—3-1-14.

F.E.M.—5-1-14.

LEGISLATIVE DEPARTMENT.

II

Resolution No. IX proposed to be moved by the Hon'ble Mr. K. Rama Ayyangar at the meeting of the Legislative Council to be held on the 27th January 1914.

This Council recommends to the Governor in Council that an enquiry into the Periyar irrigation system is essential and that the supply in the branches and distributaries should be fixed by the Engineer and the Revenue Divisional Officer with reference to the ayakat under each distributary and the same should be published for the information of the ryots and that a daily report be called for from the subordinate officers of the Public Works Department by the Engineer and the Collector with the countersignature of some big pattadars.

Submitted that two copies of this resolution may be forwarded to the Public Works (Irrigation Branch) and Revenue Departments with reference to No. (1) of the rules regulating Secretariat procedure in dealing with these resolutions in the Legislative Council.

Orders regarding admission will be communicated in due course.

C. S. ANANTARAMA AYYAR—7-1-14.

To the Public Works Department (Irrigation) u. o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Under Secretary—

Joint Secretary—

The Superintending Engineer's report on the resolution will be found on pages 1-4 of the order*. The Collector of Madura may be asked to expedite his remarks on the Superintending Engineer's letter. A draft telegram is put up.

* Letter No. 34-655, dated 3rd January 1914.

G.V.—10-1-14.

F.E.M.—10-1-14.

Collector's report just received and telegram need not issue

W. M. ELLIS—10-1-14.

The resolution of the Hon'ble Mr. K. Rama Ayyangar No. IX (page 4) is in the same terms as that proposed for, but not put before, the last Council meeting (of 11th November 1913)—page 1 of notes.

The notes on this resolution are to be found, on pages 1—2, and the decision of the Honourable Member is "we must oppose the resolution"—page 2.

On reference to Revenue no further action in that department had to be taken and the case was returned to be dealt with in the Public Works Department

2. The new matter available since the above was dealt with is the letters of the Superintending Engineer and Collector in reply to a reference made by Mr. H. E. Clerk which are to be found on pages 1—6 of current * file.

* No. 34-655, dated 3rd January 1914, and D. Dis. No. 62, Revenue, dated 6th January 1914.

3. The Superintending Engineer forwards a letter from Mr. O'Brien, the Executive Engineer and claims that the distribution generally is carried out under an efficient system of control, the control being altogether vested in the Executive Engineers and Sub-Divisional officers and that the current season which has been a very strenuous test of the system has vindicated the methods of control and the judgment and efficiency of the officers carrying it out.

4. The Collector of Madura writes from camp without access to all records. He condemns the proposed system of dual control of regulation by a Revenue officer and Engineer officer acting jointly and considers that the officer who is best qualified from every point of view to exercise control is the one who does exercise it, viz., the Executive Engineer. He expresses confidence in Mr. O'Brien, the present Executive Engineer.

The suggested interference and confirmation by the "big pattadar" is obviously unworkable and is condemned by the Collector.

5. The Collector, however, says he would support an enquiry as regards the general adequacy of the supply of the ayacut supposed to be irrigated (*vide* paragraph 8 of his letter), especially the kodai crop (the early crop) and what is the area which in practice does receive a sufficient and assured supply. On this matter the remarks of Revenue are asked. It is not quite clear to me what the Collector's point is, but it seems to be that the enquiry would be directed to ascertain if the area classed as double crop is excessive. It is suggested that enquiry of the holders of those lands which in the event of scarcity would suffer most, as to whether they would wish to transfer to single crop classification, would throw useful light on the matter. It appears however it is somewhat foreign to the matter of the resolution which is rather directed to enquiry into the system of regulation, actually being practised as regards the water which is available. It is already known that in bad years there is likely to be scarcity of water and occasional inadequate supply, but this appears a separate matter ; but Dis No. 368 of 24th February 1913, pages 12 to 15, gives some information regarding water-supply in the kodai crop period.

6. It is submitted that the evidence available shows that the system of regulation of the Periyār irrigation is a suitable one and is efficiently administered.

Further, as the incidence both of supply required by and supply available for the same channel are both subject to variations which cannot be known in advance, any system of supply or fixed and previously determined rule is impracticable and would greatly diminish efficiency of working the system.

W. M. Ellis—12-1-14.

To the Revenue Department u.o.

Revenue Department.

Under Secretary—

The remarks of this department are invited with reference to paragraph 8 of the Madura Collector's letter at page 6,* current file, wherein he suggests that a general enquiry should be made as to the general adequacy of the supply for the ayacut supposed to be irrigated particularly in the hot weather.

* D. Dis No. 62, Revenue, dated 6th January 1914.

The question of the adequacy of the Periyār water for double crop area generally was the subject of consideration in 1908 when the Government ordered in G.O. No 1687, Confidential, dated 16th June 1908, that in order to prevent any risk of the levy of second-crop assessment on lands to which a sufficient supply of water for second crop cannot be made, the area commanded by the system should be divided into two distinct areas "assured" and "non-assured" the former including lands to which water for two crops can with certainty be supplied in any season and the latter those lands to which such supply is uncertain. Further the Government ordered that in the "*non-assured*" area the lands may on the application of the ryots be transferred to single crop wet. On reconsideration of the above instructions the Government decided in G.O. No. 891, Confidential, dated 31st March 1909, that the use of the terms "assured" and "non-assured" was misleading and should be dropped. The Government at the same time ordered that the area outside which no water should be supplied for "kodai crops" should be definitely fixed and that it should include as many of the lands sold as double crop and should be so fixed as to restrict the supply of water to kodai crop rigidly to the lands within it. The Government

also roughly indicated the area satisfying the above conditions but the exact location of the line was left to the local officers to fix. The Government also observed that the line thus determined would be tentative until sufficient experience of the new conditions was acquired to enable Government to decide if it required modification. The Collector's proposal now is apparently that a fresh enquiry should be made for determining the area which can be supplied with water for kodai crops. From the figures at page 15 of current file of Dis No 369, dated 24th February 1913, it appears that the supply available for kodai crops between the years 1909–1912 was subject to variations. It is for orders if the Collector's suggestion for an enquiry will be accepted.

B.M.R.—15-1-14.

Reference is solicited to paragraph 6 of the Collector's report No. 271, dated 17th November 1913, at page 4 of G.O. No. 92, dated 7th January 1914, extracted below:—

"It is not necessary now to enter on the large question of the adequacy of the Periyār supply for the area which it commands. The evidence that we have, in the shape of unauthorised bunding of channels and interference with sluices, as well as the comparatively small area cultivated with kodai crop, shows that either in sufficiency or in methods of distribution, present conditions are by no means all that the cultivator desires. I must confess to some sympathy with the owner of Periyār lands who has foresight enough—even though it may be of a selfish kind—to protest against new lands being brought under irrigation until he has got all the water he wants for his lands."

The file may be returned to Public Works Department (Irrigation Branch) with the remarks of this department.

R.S.—16-1-14.

Secretary—

H.A.W.—17-1-14.

Honourable Member—

The resolution will be dealt with in the Public Works Department and on page 2 the Hon'ble Sir H. A. Stuart noted in last November that a similar resolution should be opposed.

I invite attention to the remarks of the Superintending Engineer, Executive Engineer and Collector in the current file.*

* No. 34–655, dated 3rd January 1914.
No 1554-S.E., dated 13th December 1913.
D. Dis. No. 62, dated 6th January 1914.

In the resolution it is proposed—

(1) that the Revenue Divisional Officer should have a voice in fixing the supply in the channels and distributaries;

(2) that subordinate Public Works Department officers should send to the Executive Engineer and the Collector a daily report (of what ?) signed by two big pattadars.

The latter suggestion is merely a bit of fancy-work. The former may be taken to mean the introduction of a system of dual control which should certainly in my opinion be opposed.

Then the resolution suggests—

(3) that a statement of the supply in each branch, etc., should be published for the information of the ryots.

As to the inadvisability of publishing such a statement please see **A** on page 1, *supra*. Finally the resolution proposes—

(4) an enquiry into the whole system. Mr. Knapp was talking to me lately on this subject. He seems to think that the double crop area is much too large for the supply and considers that there are defects which an enquiry might tend to remove. He suggested that the Settlement Member of the Board associated with an Engineer might be deputed to hold a local enquiry.

My experience as Collector of Madura was that things were not working quite smoothly, but I anticipated that the recent division of the ayacut into single and double crop areas would rectify things which according to Mr. Knapp it has not done.

Mr. O'Brien contends (pages 2–4, current* file), that the Legislative Council Member merely voices the complaints of a few vakils whose land suffers, because they pay no personal attention to it. This may or may not be correct, but any way I would suggest that Government should take the line not of opposing the demand for an enquiry, but of promising to consider the question if the Legislative Council Member will bring forward a sufficient number of actual cases where loss has been suffered to prove that there are material defects in the working of the system.

*No. 1554 S. E., dated 13th December 1913.

It is thought advisable to take Honourable Member's views before returning the file to the Public Works Department.

A.B.—17–1–14.

The Hon'ble Mr. Rama Ayyangar does not say what the evils are which he wishes to remedy. He may be thinking of insufficiency of supply in the whole Periyār area; or in one or more parts of it; or of faulty construction of channels, or faulty alignment; or of corruption among subordinates; or of any one or more of many other matters which to the non-professional mind might seem open to criticism. We shall have to wait and see what he has to say. There is no reason at present to assume, as Mr. O'Brien has, that Mr. Rama Ayyangar intends to bring a railing accusation against any one.

. Whatever the evils he alleges, and of course his first duty is to prove their existence—the proposal that some big pattadars should countersign the daily readings is impracticable and absurd. Equally so is the suggestion, if it is really his suggestion, that the supply in each channel should be fixed and immutable. It must vary, and if it varies, there is no advantage in publishing the supply provided from time to time.

3. Mr. Rama Ayyangar does not tell us what are to be the subjects of the enquiry which he proposes. It cannot be with reference to his three subsequent recommendations, those which I have referred to in the last paragraph; for enquiry or no enquiry, he wishes those three recommendations to be put into effect: and he can't wish to have the elaborate procedure of an enquiry, merely to register the Legislative Council's orders.

4. I don't think it will be difficult to meet his resolution as it stands. If he has anything to say which indicates the desirability of enquiry into other matters than those to which his resolution seems to refer, we can consider the matter.

J. N. A[tkinson]—18–1–14.

To the Public Works Department (Irrigation) u.o.

A.B.—19–1–14.

Public Works Department
(Irrigation Branch).

Secretary—

The file may now be circulated to Honourable Member who will, it is presumed, take charge of the resolution.

P.K.S.—20–1–14.

Honourable Member—

W.M.E.—20–1–14.

Please ask the Collector and the Executive Engineer separately by wire how much if any of the Periyār area has been left uncultivated or has proved a failure this year. Detailed figures are not required: approximate general estimates will suffice.

Meanwhile the papers should be printed without delay.

H. A. S[tuart]—21–1–14.

Under Secretary—

Joint Secretary—

A draft telegram to the Executive Engineer and the Collector is submitted for approval. An office-note to the Superintendent, Government Press, is also put up.

2. The Legislative Department may be informed that the Honourable Member will take charge of the resolution. Honourable Member has not specifically said that he will take charge of the resolution. But his attention was invited to the matter in the office-note, dated 20th January 1914 above and presumably as the Honourable Member in charge of the department he will take charge of the resolution. On this assumption a u.o. note to Legislative is put up.

Intimated to Legislative on 21st January 1914.
U.O. note despatched to Legislative on 21st January 1914.

G.V.—21-1-14.

P.K.S.—21-1-14.

F.E.M.—21-1-14.

W.M.E.—21-1-14.

[Telegram issued on 21st January 1914.]

Telegram from the Executive Engineer, Madura division, dated 22nd January 1914.

Under Secretary—

Joint Secretary—

Submitted for perusal.

Reply from the Collector of Madura is awaited. Copies of the notes connected with the resolution are still awaited from the press. The press has been reminded twice by telephone today.

G.V.—22-1-14

P.K.S.—22-1-14.

F.E.M.—22-1-14.

W.M.E.—22-1-14.

From the Superintending Engineer, VI Circle, dated 13*th*/16*th January* 1914, *No.* 72-*C.E.*/655.

Honourable Member—

[Endorsement from Superintending Engineer forwarding letter from Executive Engineer, Madura, submitting diagram showing discharges from the Periyār lake and corresponding discharges at Peranai in the main canal during the past year.] There was a loss of 17 per cent. in transmission during August and September months which were exceptionally dry, while there was a very deficient impounded supply in the lake. From the middle of September issues from the lake were slightly reduced, while a great reduction was made from 30th September to 18th October when things were looking very bad.

Had there not been rain in October giving a run-off into the lake, bad failure would probably have ensued.

2. While no serious failure has occurred hitherto under the Periyār, there is no doubt that there is a liability to such failure through a rare combination of adverse circumstances.

3. The letter of the Executive Engineer brings out clearly the impossibility of a regulation by prearranged rules and the necessity for leaving the control in the hands of the local official most competent to judge of those conditions. There is no reason however why the general considerations which must guide the controlling officers should not be placed on record not with a view to hampering such officers but with a view to his guidance—especially this is necessary when a change of Executive Engineers takes place.

It is not however considered that any such instructions should be published.

W.M.E.—23-1-14.

I am going away tonight and should like this file back by Sunday morning. I hope the Secretary will be prepared to speak if necessary.

H. A. S[TUART]—23-1-14.

Honourable Member—

The file is returned as directed I send separetely a note stating generally what I propose to say on the subject of this resoultion if called on to speak.

W.M.E.—24-1-14.

[Seen by Honourable Member and file returned by Joint Secretary on 29th January 1914.]

Under Secretary—

The reports of the speeches made at the meeting of the Council may, it is submitted, be awaited.

G.V.—2-2-14.

P.K S.—2-2-14.

F.E.M.—2-2-14.

Demi-official—from A. R. KNAPP, Esq., I.C.S., Collector of Madura.
To—the Hon'ble Mr. A. BUTTERWORTH, I.C.S., Secretary to Government, Revenue Department.
Dated—the 23rd January 1914.

When I spoke to you the other day in Madras about the Periyār question I said speaking from memory that the area which raises kodai crop was only about 35,000 acres. My office has now shown me figures suggesting that the area which grows a second crop is very much larger, namely 49,000. I am investigating this further. Meanwhile I write to prevent you from basing any conclusion on my previous figure.

Demi-official—from the Hon'ble Sir HAROLD STUART, K.C.V.O., C.S.I., Member of Council.
To—the Hon'ble Col. W. M. ELLIS, R.E., Joint Secretary to Government, Public Works Department, Irrigation Branch.
Dated—Adyar, the 6th February 1914.

In the debate on Mr. Rama Ayyangar's resolution about the Periyār, I promised to have an inquiry made into the general question of the sufficiency of water for the area classed as "double crop." I think that this inquiry might be made by one of the Members of the Board of Revenue—Mr. Gillman for choice, since he has personal knowledge of the Madura district. Will you please take the necessary steps to have the matter submitted for orders?

The case had better be sent to Revenue for making proposals.

W.M.E.—7-2-14.

Under Secretary—
Joint Secretary—

The connected file is put up. The reports of the speeches made at the meeting of the Council are awaited. The file may be sent to Revenue for necessary action with reference to Honourable Member's demi-official above.

It appears desirable that final orders on the subject should issue from this department.

G.V.—7-2-14.

P.K.S.—7-2-14.

F.E.M.—7-2-14.
W.M.E.—7-2-14.

To the Revenue Department u.o.

REVENUE DEPARTMENT.

Under Secretary—

Submitted for orders with reference to the Hon'ble Sir Harold Stuart's demi-official above. It is presumed that instructions regarding the scope of the inquiry will be issued by the Public Works Department (Irrigation). A copy of the Legislative Council discussions has not yet been received from the Press.

B.M.R.—9-2-14.

R.S.—9-2-14.

Secretary—

H.A.W.—9-2-14.

Strictly speaking the inquiry should be conducted by the Settlement Member of the Board (Mr. Buckley) if any Member be entrusted with the enquiry. But, as the **A** Hon'ble Sir Harold Stuart observes, Mr. Gillman's local knowledge would be useful. I am not sure whether he is to be *associated* with Public Works officer or whether a Public Works officer will simply *accompany* him as an adviser.

Perhaps the best plan would be to adopt the latter course, the Public Works officer selected being a man who knows the place and circumstances well.

B It is probably too late to start enquiry during the present season, and if so, then it will perhaps be advisable to postpone it till about September when local defects in supply can be ascertained most easily. Will Public Works Department (Irrigation) please advise as to points **A** and **B** before this goes to the Honurable Member, Revenue.

A.B.—10-2-14.

To the Public Works Department (Irrigation) u.o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Under Secretary—
Joint Secretary—

The course suggested in Revenue, viz., that a Public Works officer will accompany and advise the special officer, may be accepted.

The inquiry may, as suggested, be postponed to the next irrigation season.

P.K.S.—10-2-14.

F.E.M.—10-2-14.

The inquiry had better as suggested be postponed to September next.

It is considered desirable that a Public Works Department officer should act as adviser to the Board Member.

The present Executive Engineer Mr. O'Brien would be the best man for this. He has intimated that he wants leave in August, but it is considered that this might be postponed till October and Mr. O' Brien might be relieved at the end of August so as to be able to give all his time to this inquiry and go on leave in October.

The enquiry is specially asked for by the Collector of Madura and it is considered that its scope should be defined by Revenue: and this appears specially desirable as Mr. Butterworth has personal knowledge of the problem.

W.M.E.—10-2-14.

To the Revenue Department u.o.

Secretary—

REVENUE DEPARTMENT.

H.A.W—11-2-14.

The papers have to be dealt with in Public Works Department; they were referred only unofficially to Revenue. So will Public Works Department please see that they are circulated to the Hon'ble Sir John Atkinson?

If the inquiry is not to take place till September, there is plenty of time to ask the Board of Revenue to consult the Collector, who knows the present problems better than I do, as to the exact points to which the inquiry should be directed from the revenue point of view.

A.B.—12-2-14.

To the Public Works Department (Irrigation) u o.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

Joint Secretary—

The file may be circulated to Honourable Member and the Hon'ble Sir John Atkinson for orders as to whether Mr. Buckley as Settlement Commissioner or Mr. Gillman as possessing local knowledge should be entrusted with the proposed inquiry. As the inquiry is to be deferred to September, the Board of Revenue may be asked to consult the Collector and report the exact points to which the enquiry should be directed.

P.K.S.—12-2-14.

W.M.E.—12-2-14.

Circulated to the Honourable Member and the Hon'ble Sir John Atkinson.

W.M.E.—12-2-14.

I would depute Mr. Gillman with Mr. O'Brien as his assessor and Mr. Gillman may be asked u.o. to formulate the detailed lines of inquiry in order that orders may issue without delay. Mr. Gillman, as Collector, made some inquiry into the matter I think.

H. A. S[TUART]—13-2-14.

J. N. A[TKINSON]—14-2-14.

The file may be sent to Revenue who will ask Mr. Gillman unofficially to formulate the detailed lines of enquiry.

P.K.S.—16-2-14.

F.E.M.—16-2-14.

W.M.E.—16-2-14.

To the Revenue Department u.o.

REVENUE DEPARTMENT.

Secretary—

The file may be forwarded to the Hon'ble Mr. Gillman u.o. for necessary action.*

Yes. We should also pass an intermediate order on the linked † Revenue file.

A.B.—17-2-14.

* *I.e.*, as to the exact points to which the inquiry should be directed.

A.B.—17-2-14.

† Rev. C. No. 294 B/12-1, dated 9th February 1914.

To the Hon'ble Mr. Gillman u.o.

It is suggested that the officer conducting the inquiry may be directed to report on the following questions :—

(1) The extent and situation of the lands irrigated from the main channel and its branches to which water is usually taken for the cultivation of a wet crop during the kodai crop season, which commences in June as soon as the lake is opened.

[*Note.*—The demand for water during the kodai crop season has to be determined. All the lands on which cultivation is commenced in June—July are not cultivated with two crops. A single (kalam) crop only is raised on some of them by choice.]

(2) The supply usually available at the Peranai head-sluice, from June to August and the reasons for considering this supply to be adequate or inadequate for the irrigated area.

(3) The necessity, or otherwise, of revising the area to which water is restricted during the early part of the kodai crop season so as to exclude/include land which cannot/can be supplied during that season.

(4) The area and situation of lands, registered as double crop wet and lying outside the area to which water is, or is proposed to be so restricted, and how these lands should be treated.

H. F. W. Gillman—4-3-14.

To the Revenue Department u.o.

Revenue Department.

Under Secretary—

The Hon'ble Mr. Gillman has stated above the points to which the inquiry should be directed. The file may be returned to Public Works Department (Irrigation) for further action.

B.M.R.—5-3-14.
R.S.—5-3-14.

Secretary—

H.A.W.—5-3-14.

Yes.

A.B.—6-3-14.

To the Public Works Department.

III

Extracts from the Legislative Council Proceedings of the 28*th and* 29*th January* 1914.

* * * * *

PERIYAR IRRIGATION SYSTEM.

The Hon'ble Mr. K. Rama Ayyangar :—" The resolution which I have the honour to move runs as follows :—

IV. This Council recommends to the Governor in Council that an inquiry into the Periyar irrigation system is essential and that the supply in the branches and distributaries should be fixed by the Engineer and the Revenue Divisional Officer with reference to the ayakat under each distributary and the same should be published for the information of the ryots and that a daily report be called for from the subordinate officers of the Public Works Department by the Engineer and the Collector with the countersignature of some big pattadars.

" My Lord, this is a resolution the substance of which has been sought to be placed before this Council by various Honourable Members for some years past. The Hon'ble Mr. Ramabhadra Nayudu, Mr. Shanmukham Pillai who was in the

Council and I myself have been trying to elicit information from the Government which will enable us to see that steps were taken to remedy the existing difficulties in the Periyār irrigation system. I have come before this Council; but unfortunately for me there was a previous resolution which was discussed at the last sitting of this Council moved by the Hon'ble Mr. Ramachandra Rao relating to the deltaic tracts of this Presidency. That discussion I shall take advantage of for not pressing portions which would be unnecessary to repeat here, but, in spite of all the discussions we had then, I would press upon this Council the necessity of the prayer asked for, and moved by me in this resolution. I think it is a matter that concerns a large area which yields over and above the previous irrigation revenue that was being realized from that tract, about 6 lakhs or 5·85 lakhs, to be more accurate. This has been realized over and above the two lakhs of rupees that was being collected from that area for the old irrigated lands. In fact, the Periyār irrigation system has been in vogue these 17 years; and all the time in spite of repeated attempts we have not been able to see that the whole system is brought to any order. Honourable members of this Council might have very clearly heard that in that area there have been repeated complaints, for various reasons, which I will analyse later on and which can in my opinion be solved only by the inquiry that I suggest If we adopt methods that I refer to, if not in the same words that I have put but in the spirit of it, it will enable us to bring the difficulties of the ryots to the lowest possible depth.

" My submission is that in the Periyār system the whole tract has not been laid out properly. I shall take the general reasons first, and then go into the special ones. In fact, the previous existing channels have been utilized, as far as possible, for the diversion of the water-course and some of the tanks there have been utilized for distributing water over a larger area than they were previously commanding. I will give only one example of it, so that I need not repeat in detail what is the effect in other places. The channel that takes water to Todanari tank has to irrigate 3,000 acres of land. This Todanari tank had its rights established to certain channels by means of previous decisions which have gone up to the High Court. The channel which was held to be the sole channel for this tank is now being utilized for bringing Periyār water allowing branches from this channel to irrigate lands under several tanks such as Chinnanapatty tank, etc. After the water enters the Todanari tank we find that it has again to supply from this tank another set of four or five tanks inclusive of Samayanallur, Paravi, and other tanks. The water is not quite sufficient for reaching that tank; and in fact the whole area that is being irrigated by this channel comes to about 3,000 acres of which below Todanari tank and inclusive of Todanari we have got about 800 acres to be irrigated and above Todanari tank it comes to about 2,000 acres. Where water is allowed to flow into the tank it is found so very difficult to supply in time more tanks, so much so that Paravi villagers have been repeatedly petitioning the Public Works Department and Revenue officers to relieve them from their lands being classified under the Periyār system. They will be satisfied, they say, if they will be allowed to revert to the old system because they say that water is not ordinarily allowed to reach the lands when the Periyār lake opens or within measurable time of the Periyār lake being opened. There are various tank owners who complain like that, six or seven. The Todanari tank which had its rights established has eight villages to interfere with the channel; and there have been criminal cases disposed of against those who wanted to bund this channel. Yet we find bunding going on especially in the first portion of the year. So when water is let down it is not found possible to regulate it properly. My point in this connection is that it has to be examined and found out if other channels or sluices could be opened in other places which will more conveniently irrigate all these 3,000 acres without difficulty. It is not that such arrangements could not be made. In fact these systems have been adopted and therefore probably it is found difficult to change them all at once. And representations made have to be put off because officers themselves are engaged in the distribution; and the general change of the arrangement of the channels again is not a thing to be adopted without a regular inquiry. Therefore the first point to be urged is that in the case of most of these lands it will be necessary to arrange channels to take off from the branches or the main channel which will enable larger areas to get better supply of water.

"Then with reference to one branch of the channel, channel No. 4 I understand that it is one of the channels which irrigates a very large area. The water taking off to the branch channel is not sufficient and is not felt to be quite adequate to give full supply to all the area that is irrigated by that branch channel No. 4. That is a point which deserves attention and a full inquiry will be needed.

"The next set of things that need inquiry is, we find that various lands are on a level higher than the sluices which are intended to irrigate them and various lands are on a lower level than the other lands under the same sluice, so much so that it becomes almost impossible for the owners to arrange amongst themselves to irrigate the several lands. A proper investigation and alignment of channels will be an absolute necessity if the whole system is to go on without much of complaint. It has to be done under each branch. I understand that in Papakudi we have lands, about 500 acres in extent, which are supplied by one sluice. About sixty or seventy acres are on a higher level than the remaining area and therefore it becomes impossible for the ryots under that sluice to agree amongst themselves to get a full supply for the full 500 acres. Similarly in other branch channel, ninth branch channel, there are sluices taking off from the fourth supply branch—I speak subject to correction. There again, there are lands which could not be irrigated properly by the sluice that now works. Various other places might be mentioned. The whole system will have to be examined and corrected if matters have to continue without much complaint.

"The next point that I will draw the attention of the Council to is the supply of water for the *kodai* crop. In the Government reports it appears as the first crop and the second crop. The first crop is long crop and the second crop is the *kodai* crop. The *kodai* crop cultivation is to commence about the beginning or middle of May at the latest. But what happens is that when the lake is not full enough or for other reasons the department opens the lake at a period which is not quite convenient for the cultivation of the *kodai* crop, and even under the reduced acreage the second-crop area has been fixed, as far as I see from the papers, at about 50,000 acres and all that area has to be supplied with water and whether they cultivate or no, they are bound to pay revenue to the Government. For all that area water must be let down which will in fact give the necessary supply and at proper season. The question as to what the proper season is has been engaging the attention of the Collector, Public Works Department officers and I think some ryots have also been called together. A satisfactory solution has not been arrived at for various reasons which I do not think it necessary to mention here; but an inquiry alone can enable the officers to agree and come to a definite conclusion about this matter.

"Connected with this is another question. Periyār irrigation is now settled at about 125,000 acres. It is expected to improve and probably originally it was expected to run up to 190,000 acres. At present they cultivate 125,000 acres in all. Of this area it is found that 50,000 acres have to be supplied for two crops, the Public Works Department officers resolve upon allowing water to area more than the allotted area. When asked about reasons how they decide upon that, they say that when they find water wasted, or when there is excess water they sell water to other people when it is a source of profit to Government. I do not object to such sales of water that might be wasted but I do want that the principle of such sales will have to be settled by an inquiry. A previous interpellation that was put in this Council was answered that water that was wasted was actually sold. Under what circumstances and for what areas such sale took place was not mentioned. Actually I find that without supplying the water that would be necessary for a single soaking or two for an area or without providing water to a particular landlord whose crop might wither for want of such water, what is done is that from the beginning of the cultivation season or from the beginning of the time they do not have even before the first ploughing rains, water is allowed to flow into an area not covered by the Periyār. Once they agree to supply water like that they have to continue water till the whole crops mature and that kind of supplying extra area always brings on trouble. If the supply is commenced in November or December and the crop matures only about the end of March or the beginning of March, the supply has to continue till the closure of the lake and at a time when there is no further supply to the lake. So that I find from certain figures that I called for from the Secretary to the Public

Works Department that on the 1st March the lake level was 130·95 in 1913 and on the date the lake was closed it was 122·30. That is at the time when the Periyār usual area had almost been cropped. There was only very little area which deserved this supply and there was also the giving of water to other area. The lake level had to go down to 122·30 within 20 days and the effect of it was that till the end of June 1913,—when alone water rose from 122·30 to 127·00 they could not open the lake to supply water for *kodai* cultivation. So a proper inquiry alone will enable the Government to decide the method of granting water even for a short time, and if so for what purposes and for what time it should be allowed and continued. These are all matters to be decided. If, for example, after November, when we do not ordinarily expect rains in these parts, there is a continuous supply allowed to run into other areas, the effect will be that in spite of necessity to close the lake, water will have to be continued to flow also to the extra area and the lake level is likely to be reduced considerably with the effect that it could not be opened again in time unless there have been freshes in the middle. Of course if there are rains on the hills earlier and the lake level is maintained it may be opened in time but that is not what has to be considered in this matter. The Government have 50,000 acres which they are bound to treat as double-crop area for which they get full assessment irrespective of the question whether the ryots cultivate those lands or not. For 50,000 acres to have water for both crops it is not difficult to arrange at all. The difficulty arises only in not fixing the method of disposal of water at the end of the season for closing the lake. I say a proper inquiry and a proper decision as to the method of disposal would considerably help officers in arriving at a decision in this matter. It is not a question in which anything but an inquiry can decide the point. It cannot be arrived at all at once, because if water is supplied by the area to other areas, the supply will have to be also made till the crops mature And if water is supplied in quantity that can be stopped at any time, that would not interfere with the lake level. An arrangement of that kind will have to be come to after consideration. In regard to that matter I find from a letter as regards the sale of water to the Sivaganga zamindari, this is what the Hon'ble Mr. Clerk wrote: 'Periyār water was 'supplied to about 66 tanks in the Sivaganga zamindari from the tail ends of channels 'and the water would have gone to waste if it had not been sent to the above tanks. 'The supply was mostly given in January, February and March The quantity of 'water so supplied is not known as the supply was given through open cuts and no 'records were kept of the depths of water passing through them. The extent so 'irrigated in fasli 1322 was 1,773 acres of first crop and 122 acres of second crop 'from which a water-cess of Rs. 7,458 was realized.' This answer will do, to show that there is no principle observed in the sale of this water. If from 1st March to 20th March the lake was open and in March also water was supplied to other villages not covered by the Periyār area and if we find as a fact that 8½ feet of water in the Periyār lake has gone down from the 1st to the 20th March—I speak subject to correction—it must be a great supply causing serious loss. One foot of water in the Periyār lake gives about five days' supply for the Periyār area. Whatever that may be, 8½ feet of water have had to be sent down from 1st to 20th March and within that period water has been supplied also to a tract beyond the Periyār area. If 5 out of 8½ feet could be retained for the opening of the lake at an earlier season that would certainly ensure a supply of 50,000 acres bound to be supplied for both crops. It will also ensure an earlier opening of the lake and also give greater contentment. Therefore that is a point which deserves to be settled after an inquiry.

"The next point which I will place before the Council in connection with this matter is the most difficult question as to the quantity of water that has to be supplied during the first months after the reopening of the lake. That seems to have caused considerable trouble in the whole area. The Public Works Department officers seem to proceed upon certain formulæ algebraical, which gives them certain cusecs to supply water for a particular area. How these figures were arrived at we cannot now say. The whole area was dry waste which has been sold by Government as double crop or which has been reclaimed by ryots at very high cost. In fact, they do not have an alluvial soil which is seen in all the existing grand irrigation systems like the Gōdāvari. Kistna, Cauvery or other systems. The lands are porous and mostly gravelly and the water that is ordinarily allowed to flow into the fields does not

remain there as much as it would on other lands where you have silt formation, and clayey soil more in abundance. When we actually go to the fields this Government formula does not help us at all. Where water is supposed to irrigate 5 acres it does not moisten half an acre. My statement may look an exaggeration, or may be felt to be an exaggeration, but on actual, experiment in this matter I am sure I will be supported by some of the revenue officers who have been on the spot and examined this matter. A regular examination of the nature of the land under each sluice and of the quantity of water needed for lands irrigated by that sluice will have to be made and the quantity of water to be supplied to each sluice will have to be regulated. Until that is done it will not give satisfaction to the people there. Probably in Sholavandan, Mannadimangalam and other villages in which there are wet lands, for centuries this difficulty will not arise because water let down will not be soaked down. But under the fourth branch channel and other channels there will be absolute necessity to go into the question as to what has to be done. Originally officers in charge probably knew nothing of the state of things They had vents at these sluices of a particular size and they felt the necessity to have them like that and the supply was made freely very often. On a calculation of an algebraical formula vents have also been shortened in many places recently, the effect being that there is no supply which will be found to be even half of the supply sent down previously by the same sluice and the lands irrigated there could not be irrigated in a way that even one-tenth of the area under some places could be kept moist for the purpose of cultivation during the first portion of the season. Here again, I have to make one observation. Probably in the rainy season when lands are already wet with rains it does not take so much water to keep them wet and ready for wet cultivation. But about the beginning of May and June Madura is very hot and except late in June we do not have showers at all. And in previous five months there is extreme heat and their effect is that the soil sucks up much more water than under ordinary circumstances."

His Excellency the President (*interrupting*) :—" The Honourable gentleman has two minutes more."

The Hon'ble Mr. K. Rama Ayyangar (*continuing*) :—" That is a point in which inquiry alone will remedy matters. One other matter is that we have as many as 50,000 acres of land cultivated for double crop It will be found that at the tail end there are lands which ought to be taken away from the acreage of double crop. It will be proper that the Government should have an inquiry to find out in what cases it will be difficult to supply at the tail end of the channel. If that area is removed from the list of the double-crop area that will avoid considerable complaints from the ryots. A few months back when the settlement officer was there some of us went with him along the fourth branch channel and found that various lands could not be cultivated even though one and a half months' supply was let down. Of course, plenty of water is let down, but it is shut down by means of screws so as to see that it runs through to the last channel. It is in coming through the distributaries that you will find such a small quantity and you will find that it does not enable the ryot to cultivate as much as he ought to. As regards the subordinate officers they must submit diaries. I would make that suggestion to avoid considerable malpractices which are going on. It is almost certain that the *jari* villages get their lands filled much earlier than double-crop lands and these are things that must cause much hardship. The proper way is to undertake a regular inquiry as to the sort of record which will indicate the amount of water that has to be let down from a particular sluice and the control of the same by means of this kind of communication between the Revenue Department and Public Works Department subordinate officers. The method proposed by me in the proposition or some other method the Government might decide upon will help the Government to put down corruption and see that ryots are benefited and their grievances are heard. With these few words I move the resolution."

The Hon'ble Mr. Chidambaranatha Mudaliyar :—" I second the proposition moved by the Hon'ble Mr. Rama Ayyangar."

The Hon'ble Sir Harold Stuart :—" Your Excellency, I am glad that the Honourable Member has not pressed the details of his resolution, because I think he

would have found it very difficult to justify the covert attack he has made on the officers of the Public Works Department. There is, I make bold to say, no system of irrigation in the whole of this Presidency which is so well managed and so carefully managed as that of the Periyār. It is peculiarly well provided with a telephone system and the Engineer in charge of it nurses his water and distributes it through his channels and minor distributaries in the same careful and detailed way as a Traffic Manager manages the traffic of his railway. It is a peculiarly unfortunate year the Honourable gentleman has selected for this attack upon the officers of the Public Works Department because this year has been an extremely unfavourable one both in the matter of water in the Periyār lake and local rainfall; and yet owing to the untiring attention of Mr. O'Brien there has hardly been any loss of crop in the whole of that great area. I have a telegram here in answer to an inquiry from me in which it is stated 'No failure anywhere; on the contrary very good crops everywhere, water also supplied to the Sivaganga zamindari.' I do not think I need go into any detail to show how entirely impossible are the suggestions which the Honourable Member has put down in his resolution. Not a single one of them could be carried out, but I will meet him thus far: he has said (it has often been said) that there is not sufficient water to supply the whole of the double-crop lands. It is time that that view was substantiated by really good evidence or was definitely met. I therefore propose to order an inquiry to be made locally into the facts of that particular case. I do not think that the Honourable Member himself will require me to do more than that; he does not want me to hold a Government inquiry as to the level of the sluice in this particular channel or that or as to the flow of water through a particular tank to another tank. That is a matter which I am sure local authorities are competent to settle and are ready to settle. I dare say that the Honourable gentleman may not wish to press his resolution after hearing the speech I have just made to the Council; but if he does, I shall be obliged to resist it. I will, however, make the inquiry I have just mentioned."

The Hon'ble Mr. K. Rama Ayyangar :—"In reply to the Hon'ble Sir Harold Stuart's as regards the first observation that the Periyār area is completely under the control of the Executive Engineer and managed by him satisfactorily I have to say that it is under his control in the sense that he could let down as little water as he could possibly do. That he can command it at any time and that no sufficient water is supplied is also what I don't deny. I am not at all saying before this Council that the officers themselves do not exert their best, but I beg to differ from the Hon'ble Sir Harold Stuart when he says that the whole department is absolutely under control the like of which probably he has not seen. I should say that to most people the telephone system is not known. That system is utilized by the Public Works Department officers and they may be giving instructions. Where they do give instructions, I know they give instructions to reduce water more often than to add to the supply. It is useless for them to give instructions like that without understanding what water has to be supplied and at what season. It is not a matter that can be solved by the Engineer alone all at once with a theoretical formula. That he depends upon that is my main complaint. I am perfectly sure that once the matter is concluded by an inquiry, there will be no trouble and the Periyār system will be one of the best systems available in the world. The point is whether, with all these conveniences in the hands of Government, the Government would not make an inquiry and decide the amount of water to be let. When they begin seedling cultivation very little water is thought necessary. Water is let down subsequently—one month after—and one month is needed full supply so that lands may be cultivated wet and made ready for transplantation. All seedlings may be ready for being transplanted and then there is considerable difficulty. It is there they have to exercise considerable discretion and in exercising discretion they have not examined and gone into details and come to any conclusion. Particular areas can be very well selected and porous, clayey soil and similar soils can be found among the 125,000 acres. Government must catch hold of a few central stations where the supply could be found by scrutiny for particular period, to be sufficient to irrigate particular areas, so that they may be kept wet during the season of cultivation. That will considerably solve the position. If the Hon'ble Sir Harold Stuart, who has agreed so far to investigate the matter,

will also ask the stations to be fixed and experimented upon, it will enable them to come to a decision as to the water required for particular soils. If he will agree with me that he will issue instructions to see to the levels of the several channels and the sluice arrangements to be made for supplying large areas not through tank but by sluices—if he will be pleased to agree with me, I shall be glad to withdraw the resolution. I will only expect a very favourable answer in this matter."

The Hon'ble Sir HAROLD STUART :—" I cannot undertake to issue any instructions to fix the supply for each channel and distributary in the manner suggested in the resolution. That is quite impracticable. The Honourable Member cannot really mean that we should fix the supply for each channel and distributary and that that particular supply should be adhered to throughout the season. It would be quite impossible and quite unworkable. I will undertake an inquiry into the sufficiency of the water for the whole double-crop area. I do not think it necessary to issue instructions to the engineering staff to inquire into the inadequacy of this or that sluice. Any complaint addressed to them on the subject of a particular sluice is inquired into as a matter of ordinary business. If in any particular case inquiry is not made, the individual who has a grievance has the right of appeal to Government. I do not think anything further is needed in that direction. As I have said, I must oppose the resolution in its present terms."

His Excellency the PRESIDENT :—" Does the Honourable gentleman wish to press his resolution ?"

The Hon'ble Mr. K. RAMA AYYANGAR :—" With your Excellency's permission I had better say that the matter be carried out as far as possible. My request will be there and I am sure that the Hon'ble Sir Harold Stuart will help me as far as he could. With the concessions he made, I am sure I can make him more generous also before he issues his instructions. I withdraw my resolution."

With the permission of His Excellency the President, the resolution was withdrawn.

* * * * *

PUBLIC WORKS DEPARTMENT
(IRRIGATON BRANCH).

Under Secretary—

Joint Secretary—

The reports of the speeches in the Council on the resolution will be found on pages 12–18 *ante*. A draft order is put up for approval.

2. On page 10 *ante* the Secretary agreed with the Revenue Secretary that the inquiry be postponed to September. But, in forwarding the application for combined leave of Mr. O'Brien who is to act as assessor in the proposed inquiry, the Secretary has remarked that he understood that Mr. Gillman considered that the inquiry might be held in July next. Mr. O'Brien will have to be relieved in time to join Mr. Gillman for the conduct of the inquiry.

3. The draft order put up may be sent to Public Works and Revenue Departments for acceptance prior to circulation to the Honourable Member and the Hon'ble Sir John Atkinson.

V.K.—10-3-14.
P.K.S.—11-3-14.

F.E.M.—11-3-14.
W.M.E.—14-3-14.

To the Public Works Department u.o.
,, Revenue do.

Public Works Department.

Under Secretary—

The draft order may be accepted in this department and the file forwarded to Revenue u.o.

C.J.O.—16-3-14.

K.G.—17-3-14.

Accepted in Public Works Department.

W. G. Molesworth—17-3-14.

To the Revenue Department u.o.

Revenue Department.

Under Secretary—

Please see Official Memorandum No. 294-B/14-1, dated 19th February 1914, in another file. It has been decided that the question of amendment proposed by the Board to rule III (*c*) of the Periyār water-rate rules should be considered during the course of the enquiry about Periyār irrigation It is submitted that the proposed amendment may be included among the points for enquiry referred to in paragraph 3 of the draft. If approved, the Public Works Department (Irrigation) may be requested to add the following as clause (*e*) of paragraph 3 of the draft:—

"The desirability of amending rule III (*c*) of the Periyār water-rate rules "contained in appendix I to Board's "Standing Order No. 4 so as to make it "possible for applications for a permanent "supply of water to be made and granted "in respect of the kodai as well as the "kalam crops and the general suitability "of the present Periyār water-rate "rules."

A. Butterworth—19-3-14.

Approved.
A.B.—19-3-14.

B.M.R.—18-3-14.

R.S.—18-3-14.

Secretary—

As the inquiry is to be conducted by a Member of the Board of Revenue, is it necessary that the report should be submitted through another Member of the Board?

H.A.W.—19-3-14.

No.
A.B.—19-3-14.

I have suggested a few alterations in pencil in the draft. The additional clause (*e*) given above may be added.

A.B.—19-3-14.

To the Public Works Department (Irrigation) u.o.

Public Works Department
(Irrigation Branch).

Under Secretary—

Joint Secretary—

The alterations and the additional clause to paragraph 3 of the draft suggested by the Revenue Secretary have been made in the draft order. The draft order may be submitted to the Honourable Member and the Hon'ble Sir John Atkinson. The draft has not been sent to Public (X) for acceptance, as the Hon'ble Mr. Gillman will, it is presumed, carry out this special work in addition to his ordinary duties.

G.V.—21-3-14.

P.K.S.—21-3-14.

F.E.M.—21-3-14.

Honourable Member—

The Hon'ble and Sir John Atkinson—

W.M.E.—21-3-14.

H. A. S[TUART]—23-3-14.

J. N. A[TKINSON]—24-3-14.

Under Secretary—

Joint Secretary—

The draft order may now issue. The Government Order (*Order only*) may be placed on the Editors' Table.

G.V.—24-3-14.

P.K.S.—24-3-14.

F.E.M.—25-3-14.

W.M.E.—25-3-14.

[Issued as G.O. No. 153 I., dated 25th March 1914.]

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

Tabling Abstract.

Periyar Irrigation system

Appointing the Hon'ble Mr H. F. W. Gillman I.C.S. assisted by Mr O'Brien Ex: Engr to conduct an enquiry into the question of the working of the — in connection with a Resolution on the subject moved by the Hon'ble Mr. K. Rama Ayyangar at the meeting of the L. Council held on 28th January 1914

Cross References.

Legislative
Waters & wells
Irrigation works

Read the following :—

P1 cf	To Supg. Engr VI ⊙	No 1331 ⊙/F3-4	Dt	28.11.13
Pp1-4 cf	From ..	No 34/655	Dt	3.1.14
Pp4-6 cf	From the Collector, Madura Ddis	No 62 Rev	Dt	6.1.14
P6 cf	To Exe. Engr. Madura	Telegram	Dt	21.1.14
	To the Collector, Madura ..	.	Dt	21.1.14
P7 cf	From ..	.	Dt	22.1.14
Pp8-10 cf	From the Supg. Engr VI ⊙	No 72 CE	Dt	16.1.14
P11 cf.	From the Collector, Madura	Telegram	Dt	24.1.14

Print

Circulated to

Print notes

p 4 nf.

ORDER—No. 153 I, dated 25.3.14

Press

At the meeting of the Legislative Council held on the 28th January 1914 the Hon'ble Mr. K. Rama Ayyangar moved a Resolution recommending that an enquiry be instituted into the working of the Periyar irrigation System.

9

The

The resolution was discussed in Council and an extract ~~of~~ from the proceedings of the Council is appended. pp 23-25 of nts

2. The Govt. while they consider that the detailed suggestions ~~which~~ made by the Hon'ble Addl. Member ~~has put down in his resolution~~ cannot with advantage be adopted. ~~are entirely impracticable~~. ~~They however~~ recognise that there is some doubt ~~as to~~ whether the conditions ~~being such as to~~ ensure the supply of sufficient water for the whole of the double crop lands in the system~~, and~~ They accordingly direct that an enquiry should be made ~~on the spot~~ into the facts ~~in regard to~~ bearing on this particular question. The Hon'ble Mr. H.F.W. Gillman, I.C.S., will be deputed to make the enquiry. He will be assisted by Mr. O'Brien Executive Engineer who will act as ~~assessor~~ his professional adviser.

p 25 of nf

p 25 nf

p 18 nf

p 18 nf

3. The enquiry will be directed to the following points:-

10

(a)

p19 n.f

(a) The extent and situation of the lands irrigated from the main channel and its branches to which water is usually taken for the cultivation of a wet crop during the kodai crop season which commences in June, as soon as the lake is opened.

p20. n.f.

(b) The necessity or otherwise of revising the area to which water is restricted during the early part of the kodai crop season, so as to include or exclude lands which can or cannot be supplied during that season.

(c) The supply which can be usually distributed from June to August to the area to be irrigated and the reasons for considering this supply to be adequate or inadequate.

pp 31-32 n.f

(d) The area and situation of lands registered as double crop wet but lying outside the limits of the area which is or is proposed to be the double crop area and how these lands should be treated.

p19. n.f

(e) The desirability of amending Rule III (C) of the Periyar water rate rules contained in App I to B.S.O. No 4 so as to make it possible for applications for a permanent supply of water to be made and granted in respect of the Kodai as well as the Kalam crops and the general suitability of the present Periyar water rate rules

Recd. from EH
on 26/3/14.

4/

4. The report on the results of the enquiries made should be submitted to Government ~~through the Board of Revenue.~~ A suitable time for commencing the enquiries will be about the middle of July next.

14/3/14

14/3/14

Print notes

To the Chief Engr. for Irrgn.
" Supg. Engr. VI Circle
" Hon. Mr. H. F. W. Gillman I.C.S
" Rev. Dept. with copy of notes
" Board of Rev. (R.S)
" Public dept.

m/s. Type order only. Quote rear papers

E.T. (order only)

Despd. 26/3/14

N.E.D 28/5/14

Extract from Proceedings to be printed as annexure

12

DIAGRAM FOR THE
DISCHARGES OVER THE
MEASURING WEIR & DROP No: 1
SCALE. VERT. 1/500

N.B.

—·—·— SHOWS THE DISCHARGES OVER MEASURING WIER AT PERIYAR
—— " " OVER DROP No: 1 MAIN CANAL

DATE (1913)	DISCHARGES M. WEIR	DISCHARGES DROP No. 1
August 20	1097·25	[illegible]
21	1097·25	[illegible]
22	1097·25	1007
23	1097·25	1019
24	1097·25	1019
25	1097·25	1007
26	1097·25	970
27	1097·25	982
28	1097·25	982
29	1097·25	970
30	1097·25	945
31	1097·25	908
September 1	1097·25	970
2	1097·25	970
3	1097·25	970
4	1097·25	970
5	1097·25	958
6	1097·25	958
7	1097·25	958
8	1097·25	895
9	1097·25	920
10	1086·76	945
11	1086·76	970
12	1086·76	958
13	1086·76	920
14	1065·38	945
15	1065·38	945
16	1065·38	945
17	1065·38	895
18	1065·38	1182
19	1044·00	1283
20	1044·00	1283
21	1044·00	1182
22	1044·00	994
23	1044·00	994
24	1044·00	1091
25	1044·00	994
26	1044·00	970
27	1044·00	994
28	1044·00	1091
29	1044·00	1134
30	1044·00	861
October 1	1044·00	762
2	1044·00	804
3	1044·00	1332
4	1044·00	1332
5	705·00	1078
6	705·00	1365
7	"	1007
8	"	368
9	"	251
10	705·00	102
11	705·00	849
12	705·00	849
13	705·00	849
14	705·00	816
15	705·00	794
16	831·00	816
17	1044·00	849
18	1044·00	982
19	1044·00	1019
20	1044·00	1119
21	1022·70	1165
22	990·75	1104
23	1022·70	1049
24	1001·40	1034
25	1001·40	1019
26	1001·40	1049
27	"	1119
28	"	804
29	"	622
30	"	390
31	"	1236

No. 315 21.1.04

11-12-13.

Executive Engineer

13

17.11.33 B III

30.11.48 VI

૨મ.મ. 69/54